CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0059
WASTE DISCHARGE REQUIREMENTS
FOR
YUBA COUNTY DEPARTMENT OF PUBLIC WORKS
UNITED STATES BUREAU OF LAND MANAGEMENT
PONDEROSA LANDFILL
CLASS III LANDFILL
POST-CLOSURE MAINTENANCE
AND CORRECTIVE ACTION
YUBA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The Yuba County Department of Public Works operates the Ponderosa Landfill, a closed landfill on Jiggs Road near Ponderosa Way, approximately one mile southwest of Brownsville, as shown in Attachment "A", which is incorporated herein and made part of this Order. The landfill is on a 40-acre site in the northeast 1/4 of the northwest 1/4 of Section 34, T19N, R6E, MDB&M, corresponding to Assessor Parcel Number 50-200-035. The site is on public lands administered by the United States Bureau of Land Management, Folsom Resources Area (BLM). The Yuba County Department of Public Works and the BLM are hereafter referred to as “Discharger”.

2. The 16-acre facility includes two unlined landfill units, a borrow area, a sedimentation basin, drainage facilities, access roads, and a transfer station, as shown in Attachment "B", incorporated herein and made part of this Order. The landfill units include Landfill 1 (LF-1), a 3-acre unit in the northern part of the site, and Landfill 2 (LF-2), a 5-acre unit in the southern part of the site. LF-1 operated as a trench-fill burn dump from 1967 to 1973 and may have subsequently accepted municipal solid waste (MSW) for a period of time concurrent with LF-2. LF-2 operated from 1973 to 1992, accepting primarily MSW, demolition debris and tires.

3. The facility ceased accepting wastes in 1992 upon construction and startup of an onsite transfer station. All municipal refuse has since been transported to the Ostrom Road Landfill in Marysville. Both landfills (LF-1 and LF-2) were closed with a low permeability clay cover in December 1995.

4. Previous Waste Discharge Requirements (WDRs) Order No. 93-117, issued prior to landfill closure, no longer adequately describes the facility.

5. Effective 18 July 1997, the water quality regulations for Class II and Class III disposal facilities formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR), and the solid waste regulations formerly in Title 14, CCR, were consolidated into Chapters

1 through 7, Subdivision 1, Division 2, Title 27, CCR (Title 27). These WDRs implement Title 27 regulations.

6. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulations (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal municipal solid waste (MSW) regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate Class II or Class III landfill units at which MSW is discharged. The majority of the federal MSW regulations became effective on the "Federal Deadline", which is 9 October 1993. The landfill is subject to all federal Subtitle D regulations because it accepted MSW and does not qualify for any available exemptions. The landfill does not qualify for the limited exemption applicable to facilities that ceased accepting wastes prior to 9 October 1993 (40 CFR 258.1(d)) because it did not close within the following six-month period as required for the exemption. The landfill also does not qualify for the small landfill exemption (40 CFR 258.(f)(1)) because there is evidence of groundwater impact from the unit.

WASTES AND UNIT CLASSIFICATION

7. The landfills accepted wastes defined as “inert” and “nonhazardous” under Sections 20230 and 20220 of Title 27, respectively. Septage and other liquid wastes were not accepted at this facility.

8. The facility accepted approximately 5.5 tons (40 cubic yards) per day of waste and it is estimated that approximately 110,000 in-place cubic yards of waste have been discharged to the facility. The average thickness of waste in the landfill is estimated to be about 11 feet.

9. Both landfills (LFs-1 and 2) are existing, reclassified Class III waste management units under Section 20080(d) of Title 27, since they operated prior to 27 November 1984. LF-1 is an inactive unit under Section 20080(g) because it ceased accepting wastes prior to 27 November 1984.

SITE DESCRIPTION

10. The site is in the west-sloping foothills belt of the Sierra Nevada Mountains. Surface elevations range between 2,380 feet MSL northwest of LF-1 to 2,200 feet MSL southwest of Landfill Unit 2 near the sedimentation basin.

11. Land within 1000 feet of the facility is designated as open forest. The Daken Flat area, approximately 2000 feet southwest of the site, contains residential and commercial developments.

12. Most residences in the landfill vicinity are connected to the public water system operated by the Yuba County Water District. Approximately 25 private wells are within a one-mile radius of the site, ranging in depth from 40 and 400 feet. At least two of these wells are known to be within 2,000 feet down gradient of the landfill.

13. There are no known Holocene faults within 1000 feet of the facility. The closest active faults are the Foothills Fault Zone, approximately 15 miles southwest of the site, and the New Melones Fault zone, approximately 20 miles east of the site. The maximum credible bedrock acceleration for the region is 0.2g.

14. The region is structurally and stratigraphically complex and is underlain by sedimentary, igneous, and metamorphic rocks of late Paleozoic to Mesozoic age. Landfills at this site are underlain by deeply weathered, fractured, and sheared intrusive rocks. The majority of the soils on-site have been excavated and used for cover material. Where present, soils consist of relatively thin moderate plasticity clays with intermittent clasts of heavily weathered bedrock.

15. The site is not within a 100-year floodplain.

SURFACE AND STORM WATER

16. The nearest surface waters are South Honcut Creek approximately one mile west of the site and Dry Creek approximately two miles downstream of the site to the southeast. South Honcut Creek is tributary to the Feather River and Dry Creek is tributary to the Yuba River.

17. The site is at the apex of a surface water divide. Runoff from the west side of the site flows west toward South Honcut Creek, while storm water discharges from the landfill area (including sedimentation basin) flow southwest toward Dry Creek downstream of the site.

18. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

19. The beneficial uses of South Honcut Creek and Dry Creek are agricultural supply; recreation; aesthetic enjoyment; ground water recharge; and preservation and enhancement of fish, wildlife, and other aquatic resources. Additional beneficial uses of the Yuba and Feather Rivers include municipal and industrial supply and hydroelectric power generation.

20. The site receives an average of 67 inches per year of precipitation as determined from Rainfall Depth Duration Frequency data provided by the State Department of Water Resources for the Challenge Ranger Station near Brownsville. The 100-year, 24-hour precipitation event for this station is 11 inches. The estimated mean Class A pan evaporation rate is 55 inches per year.

LANDFILL CLOSURE

21. Both landfill units were closed in 1995 in accordance with a September 1993 Final Closure Plan (FCP). A low hydraulic conductivity (LHC) cover meeting the prescriptive requirements of Chapter 15 (now Title 27) was constructed over each unit using imported clay from a borrow source at the Ostrom Road Landfill. The cover design was as follows:

a. Foundation Layer – Two feet of compacted soil
b. LHC Layer – one foot of compacted clay ($k \leq 1 \times 10^{-6}$ cm/sec)
c. Erosion Resistant Layer – One foot of clean vegetative cover soil
d. Vegetative Cover – native grass mix

Prior to placement of foundation soil, refuse grades were reconsolidated where necessary to meet final cover slope specifications. The foundation layer was constructed using existing interim cover soil (approximately one-foot) and imported soil from the Loma Rica Quarry. The existing foundation soil was first scarified and then additional soil was placed, graded, moisture-conditioned, and compacted to specifications in accordance with project construction quality assurance (CQA). Approximately 17,000 cubic yards of clay soil was used for the LHC layer and compacted to a maximum permeability of 1×10^{-6} cm/sec. Double-ring infiltrometer test results from a test pad constructed at the Ostrom Road Landfill from the same borrow source were used to correlate laboratory and field permeability. Approximately 17,000 cubic yards of imported soil was placed as the erosion-resistant layer and hydroseeded. A field survey was conducted after installation of each layer to verify the lateral limit and thickness of each layer. Where indicated, the thickness of the layer was checked with a hand auger and additional soil was placed to meet specifications.

Cover Slopes

22. The LF-1 final cover deck slopes at a 3 to 4 percent grade from northwest (2380 feet MSL) to southeast (2360 feet MSL). The cover was constructed with a minimum slope of three percent and a maximum slope of 3:1 horizontal-to-vertical (H:V) ratio. The steepest side slopes are along the southeast perimeter of the unit.

    The LF-2 cover crest is on the western side of the unit (2310 feet MSL). From the crest the cover slopes at a three-to-four percent grade toward the center, increasing to about an 11 percent grade (5H:1V) from the center to the eastern side of the unit (2262 feet MSL). LF's steepest side slopes (3H:1V) are along the southern perimeter of the unit.

    A Section 21750(f)(5) technical report demonstrating the stability of the cover slopes was not prepared for this facility because none of the cover slopes are steeper than 3H:1V (or contain a geosynthetic component) and the Discharger closed the units prior to July 18, 1997. See Sections 21090(a) and 20310(g).

Drainage

23. LF-1 drains by sheet flow to the southeast where it is collected in longitudinal cover swales. The swales drain to an unlined ditch along the eastern perimeter of the unit which discharges down an adjacent embankment. LF-2 drains by sheet flow toward the eastern corner of the unit where flows are diverted around 4H:1V slopes by a curved cover ditch/berm. The eastern end of the cover ditch/berm drains cross-slope to the natural wash northeast of the unit while the western end drains down slope to the same wash via an over-side drain.

24. Run-on and drainage from the northern part of the site is diverted around the western perimeter of LF-1 by an unlined ditch. The ditch drains into a larger, natural drain along the northeast perimeter of LF-2 that diverts flows around LF-2. The natural drain is eroded to bedrock in most areas and contains many rock fragments that help dissipate flow velocities. The natural drain drains to a sedimentation basin in the southeast corner of the site. Run-on and drainage from the western side of the site, including the transfer station and borrow pit areas, is diverted around the western perimeter of LF-2 by an unlined ditch. The ditch turns near the southwest corner of the unit and runs east along the embankment, discharging into the sedimentation basin (see Attachment B).

25. In addition to collecting diverted run-on from both units, the sedimentation basin in the southeast corner of the site drains runoff from LF-2. The basin includes a standpipe that regulates the pond level and discharges toward Dry Creek downstream of the site.

Landfill Gas

26. There are three landfill gas (LFG) monitoring wells between the western perimeter of LF-2 and the transfer station. Concentrations of methane detected in these wells have been less then one percent of the lower explosive limit (<500 parts per million by volume). No landfill gas collection or venting facilities have been installed at either landfill.

GROUNDWATER

27. The beneficial uses of the ground water are domestic, municipal, agricultural, and industrial supply.

28. The uppermost aquifer occurs in the weathered bedrock at elevations of approximately 2275 feet MSL along the northern perimeter of LF-1 and approximately 2200 feet MSL along the southern perimeter of LF-2, with a seasonal variation of about plus or minus two feet. The depth to groundwater ranges from about 45 feet MSL (western side of LF-2) to 130 feet MSL (eastern side of LF-1) depending primarily on the surface topography.

29. The groundwater gradient is approximately 0.1 ft/ft to the southwest at LF-1 and approximately 0.075 ft/ft to the south, southwest and southeast at LF-2. The direction of flow at LF-2 may be influenced by bedrock topography.

Groundwater Monitoring

30. There are seven groundwater monitoring wells at the site, including three near LF-1 (MWs-3 through 5) and four near LF-2 (MWs-1, 2, 6 and 7).

31. A 1993 Solid Waste Assessment Test (SWAT) investigation showed the presence of volatile organic compounds (VOCs) in groundwater monitoring wells at the site. Since 1993, total VOCs detected in LF-1 compliance wells have declined from about 51 µg/L to 1.0 µg/L and total VOCs detected in LF-2 compliance wells have declined from about 31 µg/L to 6 µg/L. VOCs currently detected at the site (Fourth Quarter 2003 monitoring data) include 1,1-Dichloroethane (2.1 µg/L), 1,1-Dichloroethene (2.5 µg/L) and trace concentrations of Tetrachloroethylene, cis-1,2-Dichloroethene and Dichlorodifluoro-

methane (Freon 12). All detected VOCs were below applicable water quality limits except for Tetrachloroethylene, which was detected in well MW-4 at 0.54 µg/L, above the 0.06 µg/L California Public Health Goal.

32. Historical groundwater monitoring data indicates elevated concentrations of general minerals in MW-4 side gradient of LF-1 (there is currently no monitoring well directly down gradient of LF-1) and lower concentrations down gradient of LF-2. Since 1995 when the landfill was closed, the concentrations detected at LF-1 have declined significantly, while those detected down gradient of LF-2 have not significantly changed (see Table below):

	Concentration[1]				
Constituent	*LF-1*		*LF-2*		*Background*[4]
	1995[2]	2003[3]	1995[2]	2003[3]	1995 - 2003
Chloride	120	19	27	27	3
Hardness as $CaCO_3$	610	230	280	340	160
Sulfate	120	17	8	12	4
Total Dissolved Solids	820	240	390	380	160 - 230
Specific Conductance, µmhos/cm	1,252	399	625	609	280

1. Units in mg/L unless otherwise specified.
2. Based on Fourth Quarter 1995 monitoring data
3. Based on First Quarter 2003 monitoring data
4. Approximate historical mean concentration or range in well MW-5

33. Provision G.15 of these WDRs requires that a Point of Compliance well be installed along the down gradient perimeter of LF-1 as part of the Water Quality Protection Standard. Monitoring and Reporting Program Order No. R5-2004-0059 requires that the Discharger continue corrective action program monitoring to assess the scope of the release, delineate the extent of the plume and monitor the progress of corrective action.

Data Analysis Methods

34. The Discharger submitted a January 2004 Sampling and Analysis Plan that describes the sampling protocols and data analysis methods used for groundwater monitoring pursuant to Sections 20415(e)(4) and 20415 (e)(7) of Title 27. The data analysis methods are summarized as follows:

COC Group	Data Analysis Method	Trigger[1,2]	Needed for Confirmation[1]
VOCs & other organics	Nonstatistical	1 ≥ PQL or 2 ≥ MDL	Same COC(s) triggered in at least 1 of 2 retest samples
Inorganic COCs, < 10% in background	Nonstatistical	1 ≥ PQL	

COC Group	Data Analysis Method	Trigger[1,2]	Needed for Confirmation[1]
Inorganic COCs, ≥ 10% in background	Statistical (Tolerance Interval)	1> Concentration Limit	
Trend analysis: Monitoring Parameters	Mann-Kendall test	At least 4 historical detections >PQL for each COC[3]	
COCs	Time series plots		Not applicable

1. Notification and retest not required for tentatively indicated constituents previously confirmed as part of the release at a given monitoring point (these exceedances shall be assumed confirmed without retest).
2. "1" and "2" in listed trigger criteria refer to number of monitoring parameters or COCs.
3. Trigger for performing trend analysis not for a release.

COST ESTIMATES AND FINANCIAL ASSURANCES

35. The 1993 Post-Closure Maintenance Plan includes cost estimates for landfill maintenance and monitoring, including groundwater monitoring. Adjusted for inflation, the estimated 30-year post-closure cost in 2003 dollars is $1,265,928. The Discharger has provided financial assurances to the California Integrated Waste Management Board in the form of a Pledge of Revenue to cover these costs.

CEQA AND OTHER CONSIDERATIONS

36. On 9 November 1993, the County of Yuba Planning and Building Services approved a mitigated negative declaration for closure and post-closure maintenance of the landfill and on 10 November 1993 filed a Notice of Determination with the County of Yuba County Clerk in accordance with the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 et seq.) and CEQA guidelines (14 CCR Section 15000 et seq.). The document incorporated the Final Closure and Post-Closure Maintenance Plan for the landfill as approved by the Regional Board.

37. The action to revise the WDRs is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR Section 15301 for existing facilities.

38. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports." The monitoring and reporting program required by this Order (Monitoring and Reporting

Program No. R5-2004-0059, attached) is necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

39. On 17 June 1993, the State Water Resources Control Board adopted Resolution No. 93-62 implementing a State Policy for the construction, monitoring, and operation of MSW landfills that is consistent with the federal MSW regulations promulgated under Title 40, Code of Federal Regulations, Part 258 (Subtitle D). Title 27 incorporates *State Water Resources Control Board (SWRCB) Resolution No. 93-62*.

40. This order implements:

    a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
    b. Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;
    c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and
    d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

41. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

42. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

43. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

44. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.swrcb.ca.gov/water_laws/index.html and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 93-117 is rescinded, and that Yuba County Public Works Department and the United States Bureau of Land Management, Folsom Resources Area, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of new or additional waste to the landfills at this facility is prohibited.

2. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

3. The discharge of treated or untreated wastewater or groundwater to any surface water or any surface water drainage course is prohibited without a National Pollutant Discharge Elimination System (NPDES) permit authorizing the discharge.

4. The landfills at this site shall not cause pollution or a nuisance, as defined by the California Water Code, Section 13050, shall not cause degradation of any water supply.

5. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

B. DISCHARGE SPECIFICATIONS

1. The discharge shall remain within the designated disposal area at all times.

2. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

3. Storm water runoff from the facility shall be monitored in accordance with Monitoring and Reporting Program No. R5-2004-0059 and applicable storm water regulations.

4. A minimum separation of five feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying groundwater per Section 20240(c) of Title 27.

C. POST-CLOSURE SPECIFICATIONS

1. All final cover slopes shall be capable of withstanding a maximum probable earthquake.

2. The final cover shall be graded and maintained to prevent ponding, promote lateral runoff, and prevent soil erosion due to high run-off velocities.

3. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be maintained to prevent such erosion.

4. The erosion-resistant layer shall be maintained with native or other vegetation capable of providing effective erosion resistance.

5. Precipitation and drainage control systems shall be designed, constructed, operated and maintained to convey peak flows from a 100-year, 24-hour storm event.

6. The closed landfills shall be maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout.

7. Annually, prior to the anticipated rainy season but no later than **31 October,** any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:
   a. Contacting or percolating through wastes,
   b. Causing erosion or inundation of the landfill cover or other areas of the site, or
   c. Causing sedimentation and clogging of the storm drains.

D. FACILITY SPECIFICATIONS

1. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

2. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements. All storm water controls, including drainage facilities, shall be maintained so that they function effectively during precipitation events.

3. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

4. All wells within 500 feet of the waste management units shall have sanitary seals that meet the requirements of the Yuba County Health Department or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Board and to the State Department of Water Resources.

E. MONITORING SPECIFICATIONS

1. The Discharger shall conduct groundwater and surface water monitoring, as specified in Monitoring and Reporting Program (MRP) No. R5-2004-0059. Groundwater monitoring shall include background monitoring and corrective action monitoring. Background monitoring shall be conducted for the purpose of establishing concentration limits as part of the Water Quality Protection Standard per Section 20400(a) of Title 27. Corrective action monitoring shall be conducted for the purpose of assessing the nature and extent of the release, designing corrective action measures, and for assessing the progress of corrective action (Section 20430(d)).

2. The Discharger shall provide Regional Board staff a minimum of **one-week** notification prior to commencing any field activities related to the installation, non-routine repair, or abandonment of monitoring devices. The Discharger shall also provide Regional Board staff with a sampling schedule at least 48 hours prior to initiation of each detection, evaluation, or corrective action monitoring event conducted pursuant to MRP No. R5-2004-0059.

3. The Discharger shall comply with the Water Quality Protection Standard as specified in MRP No. R5-2004-0059 and the Standard Provisions.

4. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed concentration limits established in accordance with MRP No. R5-2004-0059.

5. The Discharger shall implement the January 2004 Sample Collection and Analysis Plan (see Finding 34), including any amendments subsequently approved by the Executive Officer. The approved plan shall include the following elements:
   a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
   b. Sample preservation information and shipment procedures;
   c. Sample analytical methods and procedures; Sample quality assurance/quality control (QA/QC) procedures; and
   d. Chain of Custody control.

6. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

7. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical*

Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved sampling plan.

8. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.

9. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

10. **"Trace" results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.

11. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

12. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

13. **Unknown chromatographic** peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

14. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the

results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

MONITORING DATA ANALYSIS

15. All monitoring data analysis methods shall be consistent with the performance standards specified in Section 20415(e)(9) and sampling standards specified in Section 20415(e)(12).

16. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Section 20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Section 20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or down gradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

17. For inorganic monitoring parameters and COCs for which at least 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use the Tolerance Interval statistical method for background and corrective action monitoring, or an alternate statistical method approved by the Executive Officer in accordance with Section 20415(e)(8)(E). The Discharger shall use the following trigger for these constituents:
    a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds its PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if the data contains an analyte that exceeds its concentration limit.

Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. The statistical method shall take into account any seasonality in the groundwater quality data.

18. For inorganic monitoring parameters and COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger for these constituents:
    a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds its MDL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if the data contains an analyte that exceeds its PQL.

    Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

19. For VOCs and other organic COCs (i.e. non-naturally occurring COCs) the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger these constituents:
    a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if either:

        1) The data contains two or more analytes that equal or exceed their respective MDLs; or

        2) The data contains one analyte that equals or exceeds its PQL.

        Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

Discrete Retest

20. If the above statistical or non-statistical trigger procedures used for groundwater monitoring data analysis provide a preliminary indication of a new release or a previously unconfirmed constituent of the existing release at a given monitoring point, the Discharger shall immediately notify Regional Board staff by phone or e-mail and,

within 30 days of such indication, shall collect *two* new (retest) samples from the monitoring point where the release is preliminarily indicated.

a. For any given retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those analytes detected in the original sample. As soon as the retest data are available, the Discharger shall apply the same tests [i.e. 17.a for statistical constituents, 18.a or 19.a for non-statistical constituents], to separately analyze each of the two suites of retest data at the monitoring point where the release is preliminarily indicated.

b. If either (or both) of the retest samples trips the applicable trigger above (17.a, 18.a or 19.a), then the Discharger shall conclude that there is measurably significant evidence of a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:

1) Immediately notify the Regional Board about the constituent verified to be present at the monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and

2) Comply with 22, below.

Constituents that have been previously confirmed as part of the release at a given monitoring point, including regularly detected COCs and COCs that are sporadically detected (e.g. as a result of seasonal or lateral fluctuations in the plume), shall be considered confirmed without notification and retest. Exceedances that the Discharger otherwise demonstrates (per Section 20420(k)(7) of Title 27) are the result of sample corruption, laboratory interferences, error, natural variation in the groundwater or other cause not associated with a release from the unit shall not trigger notification of a tentative release, and shall not trigger a retest unless a retest is necessary to make the demonstration.

21. If the Discharger determines that there is measurably significant evidence of a new release from the Unit at any monitoring point, the Discharger shall immediately implement the requirements of Response To A Release, contained in the Standard Provisions and Reporting Requirements.

22. The data analysis methods for corrective action monitoring shall also include trend analysis (i.e. Mann-Kendall) and an evaluation of the water chemistry by appropriate methods (e.g., Piper diagram, ion balance, stiff diagram etc) to monitor the effectiveness of corrective action measures in accordance with Section E.3.C of the MRP. The trigger requirement for performing trend analysis shall be as specified in Finding 34.

F. REPORTING REQUIREMENTS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

2. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period.

   Such legible records shall show the following for each sample:

   a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

   b. Date, time, and manner of sampling;

   c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

   d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

   e. Calculation of results; and

   f. Results of analyses, and the MDL and PQL for each analysis.

3. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.

4. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:

a. For each monitoring point and background monitoring point addressed by the report, a description of:

   i. The time of water level measurement;

   ii. The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

   iii. The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;

   iv. The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and

   v. A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan.

b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.

d. Laboratory statements of results of all analyses evaluating compliance with requirements.

e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.

f. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. The Standard Observations shall include:

   i. For the Unit:

      1) Evidence of ponded water at any point on the facility (show affected area on map);

      2) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

3) Evidence of erosion and/or of day-lighted refuse.

ii. Along the perimeter of the Unit:

1) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

2) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

3) Evidence of erosion and/or of day-lighted refuse.

iii. For receiving waters:

1) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area;

2) Discoloration and turbidity - description of color, source, and size of affected area;

3) Evidence of odors - presence or absence, characterization, source, and distance of travel from source;

4) Evidence of water uses - presence of water-associated wildlife;

5) Flow rate; and

6) Weather conditions - wind direction and estimated velocity, total precipitation during recent days and on the day of observation.

5. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Board **within seven days**, containing at least the following information:

a. A map showing the location(s) of seepage;

b. An estimate of the flow rate;

c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Board; and

e. Corrective measures underway or proposed, and corresponding time schedule.

6. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the reporting period of the previous monitoring year. This report shall contain:

    a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot down gradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

    b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the reporting periods for the year shall be submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The Regional Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [§20420(h)], in that this facilitates periodic review by the Regional Board.

    c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

    d. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

    e. An evaluation of the effectiveness of the leachate monitoring/control facilities.

7. The Discharger shall notify the Regional Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Reporting Requirement F.8 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board.

8. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in a, b or c above if;

      1) The authorization is made in writing by a person described in a, b, or c of this provision;

      2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

      3) The written authorization is submitted to the Regional Board.

   e. Any person signing a document under this Section shall make the following certification:

   "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

G. PROVISIONS

1. The Discharger shall maintain a copy of this Order and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2004-0059, which is attached to and made part of this order. A violation of the MRP is a violation of these waste discharge requirements.

3. The Discharger shall comply with the *Standard Provisions and Reporting Requirements* (Standard Provisions), dated April 2000, which are hereby incorporated into this Order. The Standard Provisions contain important provisions and

requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.

4. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. R5-2004-0059, as required by Section 13750 through 13755 of the California Water Code.

5. The Discharger shall immediately notify the Regional Board of any flooding, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste containment facilities or of precipitation and drainage control structures.

6. The Discharger shall maintain waste containment facilities, the landfill final cover, precipitation and drainage controls, monitoring wells, and shall continue to monitor ground water and surface waters per Monitoring and Reporting Program No. R5-2004-0059 throughout the post-closure maintenance period.

7. The post-closure maintenance period shall continue until the Regional Board verifies that remaining waste in the landfill will not threaten water quality.

8. The owners of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged wastes during the closure and post-closure maintenance period of the landfill and during subsequent use of the property for other purposes.

9. The Discharger shall submit semiannual corrective action progress reports in accordance with MRP No. R5-2004-0059 and Section 20430 of Title 27. Each progress report shall address the following issues:

   a. The source of the impact.
   b. The nature and extent of the release.
   c. Whether the size of the plume and concentrations of constituents within have increased, decreased or have not changed.
   d. The effectiveness of landfill closure as a corrective action.
   e. The need for additional corrective action measures and/or monitoring wells.

   The reports shall include plans for the installation any additional monitoring wells necessary to define the extent of the release and/or monitor the progress of corrective action.

10. If the Discharger or Regional Board determines that the corrective action program is not adequate (i.e. does not satisfy the provisions of Section 20430), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Regional Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:

    a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
    b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release
    c. A discussion of corrective action needs and options.
    d. Proposed additional corrective action measures, as necessary, for:
        i. Source control,
        ii. Adequate separation from groundwater,
        iii. Groundwater cleanup, and/or
        iv. Landfill gas control
    e. A plan to monitor the progress of corrective action measures consistent with the MRP
    f. Cost estimates for implementing additional corrective action, including monitoring
    g. An implementation schedule.

11. The Discharger shall update the Final Post-Closure Maintenance Plan as necessary to reflect current operations and requirements under these WDRs and MRP No. R5-2004-0059. The plan shall include updated cost estimates for post-closure maintenance, monitoring and any additional corrective action measures that may be necessary to comply with these WDRs. A copy of the updated plan shall be provided to the Regional Board by **30 September 2004**.

12. The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in an amount approved by the Executive Officer, and shall submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board.

13. The Discharger is required to maintain financial assurance mechanisms for closure and post-closure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.

14. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall

include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

15. **On or before 30 July 2004**, the Discharger shall submit a work plan and schedule for the installation of a Point of Compliance well directly down gradient of Landfill 1, as specified under Section E.3.A of MRP No. R5-2004-0059. The Water Quality Protection Standard Report shall be amended to include this well once it is installed.

16. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

17. The Discharger shall also notify the Regional Board of any proposed land use or closure plan changes. This notification shall be given 90 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these waste discharge requirements.

18. The Regional Board will review this Order periodically and will revise these requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 23 April 2004.

_____
THOMAS R. PINKOS, Executive Officer

JDM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0059
MONITORING AND REPORTING PROGRAM
YUBA COUNTY DEPARTMENT OF PUBLIC WORKS
UNITED STATES BUREAU OF LAND MANAGEMENT
PONDEROSA LANDFILL
CLASS III LANDFILL
POST-CLOSURE MAINTENANCE
AND CORRECTIVE ACTION
YUBA COUNTY

The 16-acre facility includes a three-acre former burn dump (LF-1) in the northern part of the site a five-acre former municipal solid waste (MSW) landfill (LF-2) in the southern part of the site. Both units are unlined. The direction of groundwater flow varies site-wide but is generally to the south, southwest or southeast. There are currently seven groundwater monitoring wells at the site.

Volatile organic compounds (VOCs) and elevated concentrations of general minerals were detected during a Solid Waste Assessment Test (SWAT) conducted in 1993. Since the Landfill was closed in 1995, total VOCs detected at LF-1 have declined from about 51 µg/L to about 1.0 µg/L and total VOCs detected at LF-2 have declined from about 31 µg/L to 6 µg/L, respectively. VOCs currently detected in groundwater include Dichlorodifluoromethane (Freon 12), 1,1-Dichloroethane, 1,1-Dichloroethene, Tetrachloroethylene (TCE, 0.54 µg/L), and cis-1,2-Dichloroethene. All currently detected VOCs are below applicable water quality limits except for the TCE, which has been detected at trace levels. The concentrations of general minerals, including chloride, sulfate and total dissolved solids detected down gradient of LF-1 have also declined since 1995.

Pursuant to Section 20080(g) of Title 27, the Discharger shall maintain water quality monitoring systems for background and corrective action monitoring. Compliance with this MRP is ordered by Waste Discharge Requirements (WDRs) Order No. R5-2004-0059.

A. SUMMARY OF MONITORING & REPORTING FREQUENCIES

Table A

Section	Reporting	Frequency
B.	1. Semiannual Report	Semiannually
	2. Annual Summary Report	Annually
	3. Constituents of Concern Report	Every 5 years
C.	Water Quality Protection Standard Report	Update as necessary
Section	**Monitoring**	**Frequency**
D.	Leachate Monitoring	Same as F.1
E.	Groundwater Monitoring:	
	1. Elevation	Quarterly
	2. Background & Corrective Action Monitoring	Semiannually
	3. Constituents of Concern	Every 5 years
Section	**Monitoring**	**Frequency**

F.	Facility Monitoring:	
	1. Standard Observations	
	A. Wet Season	Monthly
	B. Dry Season	Quarterly
	2. Maintenance Inspections	Quarterly
	3. After Storm Events	Within 7 Days After Significant Storm Event
	4. Site Winterization	Annually

B. REPORTING

1. Semiannual Reports

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required under Order No. R5-2004-0059 and the Standard Provisions and Reporting Requirements (April 2000). Reports shall be submitted **semiannually**. Each semiannual monitoring report shall include the following information:

A. A compliance evaluation summary for the monitoring period.
B. A tabular summary of well information from the installation logs, including well name, top-of-casing elevation, total depth, depths/elevations of screened interval, aquifer or zone (i.e. uppermost), and soil type(s) over the screened interval.
C. The results of groundwater elevation monitoring.
D. Tabular summaries of corrective action monitoring data for each unit showing sampling dates, well, constituents, concentrations, and concentration limits. The table shall also clearly show whether new monitoring data exceedances occurred during the monitoring period (i.e. highlight exceedances).
E. Contaminant contour maps of representative corrective action monitoring data, showing the estimated extent of the contaminant plume.
F. Tables of historical monitoring data for each unit showing well, sampling dates, constituents, concentrations, and concentration limits. The data shall be presented so as to clearly show historical concentrations at each well.
G. Plots, graphical summaries and a narrative discussion of the results of correction action monitoring, as specified in Section E.3 herein.
H. Field and laboratory tests sheets.
I. An electronic copy of the data in a digital format acceptable to the Executive Officer.

At least one semiannual monitoring report each year shall include a copy of the Sample Collection and Analysis Plan (sampling plan) referenced under WDR Monitoring Specification E.5.

2. Annual Monitoring Summary Report

An Annual Monitoring Summary Report (Annual Report) shall also be prepared and submitted in accordance with this section of the MRP and Reporting Requirement F.6 of the WDRs. The report shall summarize monitoring results for the prior year and include a discussion of compliance with the WDRs and the Water Quality Protection

Standard. The report shall contain both tabular and graphical summaries, including time series plots of historical monitoring data (including the prior year's data) for each monitoring parameter/COC. For corrective action monitoring data, the report shall also include the following:

A. A summary of the results of trend analysis performed on each constituent of the release during the prior year
B. A summary of the results of water chemistry analysis of water quality data collected during the prior year.
C. Contaminant contour maps for representative constituents (i.e. total VOCs, TDS, Chloride) constructed as part of semiannual reporting during the prior year and a discussion as to whether the size of the plume and concentrations within have increased, decreased, or remained the same since the previous monitoring year.

The Annual Report may be included in the Second Semiannual Report for each year.

Reports which do not comply with the above-required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. The semiannual and annual reports shall be submitted to the Board in accordance with the following schedule for the calendar period in which samples were taken or observations made:

Table B

Report	End of Reporting Period	Date Report Due
First Semiannual	30 June	**31 July**
Second Semiannual	31 December	**31 January**
Annual Report	31 December	**31 January**

C. WATER QUALITY PROTECTION STANDARD (Section 20390)

The Water Quality Protection Standard (WQPS) shall consist of all Constituents of Concern, Concentration Limits for each constituent of concern, Monitoring Points, Point of Compliance, and the Compliance Period.

1. Constituents of Concern (Section 20395 of Title 27)

The constituents of concern (COCs) for the landfill shall be as follows:

Table C

Constituents of Concern	**Units**	**Test Method**
Field Parameters:	See Attachment D	
General Minerals:	See Attachment D	
Inorganics (dissolved)	µg/L	See Attachment D
Volatile Organic Compounds	µg/L	USEPA Method 8260B
Semi-Volatile Organic Compounds	µg/L	USEPA Method 8270
Organophosphorus Pesticides	µg/L	USEPA Method 8141A
Chlorinated Herbicides	µg/L	USEPA Method 8151
Organochlorine Pesticides	µg/L	USEPA Method 8081A
Polychlorinated Biphenols (PCBs)	µg/L	USEPA Method 8082

2. Concentration Limits (Section 20400)

a. For VOCs and other organic COCs the concentration limit shall be the MDL.

b. For inorganic monitoring parameters and COCs for which at least 10% of the data from background samples equal or exceed their respective MDL, the concentration limit shall be determined as follows:

i. Using the Tolerance Interval statistical procedure applied to historical background data, or

ii. Using an alternative statistical method approved by the Executive Officer per Monitoring Specification E.18 of the WDRs.

c. For inorganic monitoring parameters and COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the concentration limit shall be the PQL.

Prior to calculating tolerance limits, background data shall be screened for significant rising or falling trends. If a significant trend is identified that reflects changes in background conditions, the trend data shall be used to update concentration limits. If not, concentration limits shall be developed only from prior historical data. Tolerance limits shall take into account seasonality.

3. Monitoring Points (Section 20405)

The monitoring points for groundwater monitoring shall be as listed in Table E.3A herein.

4. Point of Compliance (Section 20405)

The point of compliance (POC) for the water standard is a vertical surface located at the hydraulically down gradient limit of each Unit that extends through the uppermost aquifer underlying the Unit. The POC wells for the units shall be as follows:

a. LF-1: There is currently no POC well for LF-1. WDR Provision G.15 requires that the Discharger submit work plan and schedule for installation of an LF-1 POC well.

b. LF-2: MW-7 and any future monitoring wells installed along the LF-2 POC.

5. Compliance Period (Section 20410)

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger confirms a new release from the unit.

D. LEACHATE MONITORING

The Discharger shall monitor the landfill for leachate seeps **monthly** during the wet season and **quarterly** during the dry season as part of standard observations. Any leachate seeps observed during these inspections or at any other time shall be sampled and analyzed for the constituents of concern referenced in Table C herein. Reporting shall be conducted in

accordance with Reporting Requirement F.5 of the WDRs.

E. GROUNDWATER MONITORING

1. Groundwater Elevation Monitoring (Section 20415(e)(13))

The groundwater surface elevation (in feet and hundredths, MSL) in all wells and piezometers shall be measured on a **quarterly** basis. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters may be used to fulfill this requirement. Groundwater elevations for all upgradient and down gradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. The results of groundwater elevation monitoring shall be displayed on a water table contour map and/or groundwater flow net for the site and included in each monitoring report. The Discharger shall use the groundwater elevation monitoring data to determine the following:

A. The groundwater flow velocity
B. The gradient direction in the upper aquifer, and in any additional zone of saturation monitored pursuant to this MRP
C. Times of highest and lowest elevations of the water levels in the wells
D. Separation of groundwater from the lowest point of the unit

The results of these determinations shall be included in the semi-annual reports.

2. Background Monitoring (Section 20415(b)(1)(A))

The Discharger shall install and operate a sufficient number of Background Monitoring Points at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water that has not been affected by a release from the units per Section 20415(b)(1)(A) of Title 27.

A. Monitoring Points: As specified in Table E.3A.
B. Monitoring Schedule: As specified in Table E.3B.

Background monitoring data analysis shall include developing/updating concentration limits for statistical monitoring parameters and COCs, as necessary.

3. Corrective Action Monitoring (Sections 20425 and 20430)

The Discharger shall install and operate a groundwater corrective action monitoring system for the purpose of monitoring the nature and extent of the release and the progress of corrective action. A sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Collection and analysis of samples shall be in accordance with procedures set forth in the Sampling Collection and Analysis Plan per Monitoring Specification E.5 of the WDRs.

A. The groundwater monitoring points for LFs-1 and LF-2 shall be as follows:

Table E.3A
Background and Corrective Action Monitoring Wells

Unit/Well	Orientation	Distance From Unit	Zone
LF-1: [1]			
MW-5	Background	200 feet to north	Uppermost
MW-4	Side gradient	90 feet to west	Uppermost
MW-3	Side gradient	50 feet to east	Uppermost
----[2]	Down gradient	Point of Compliance	Uppermost
LF-2: [1]			
MW-3	Background	250 feet to north	Uppermost
MW-6	Side gradient	25 feet to west	Uppermost
MW-7	Down gradient	Point of Compliance	Uppermost
MW-1	Down gradient	100 feet to south	Uppermost
MW-2	Side gradient	200 feet to southeast	Uppermost

1. Additional monitoring wells may be necessary to define the extent of the release per WDR Provisions G.9 and G.10.
2. WDR Provision G.15 requires the Discharger to submit work plan and schedule for installation of a Point of Compliance well directly down gradient of LF-1.

The corrective action monitoring locations for each unit shall also include future wells installed along the point of compliance, down gradient, and/or side gradient of the unit to monitor the nature and extent of the release and/or progress of corrective action.

B. Monitoring Schedule

Groundwater samples shall be collected and analyzed in accordance with the following schedule:

Table E.3B
Corrective Action Monitoring Schedule

Parameter	Units	Frequency	Monitoring Approach	
Field Parameters			Nature/Extent	Trends
Elevation	Feet MSL	Quarterly	---	---
Specific Conductance	µMhos/cm	Semiannually	---	---
pH	pH units	Semiannually	---	---
Temperature	^{o}C	Semiannually	---	---
Turbidity	NTU	Semiannually	---	---
Monitoring Parameters (Attachment C)				
TDS	mg/L	Semiannually	Interwell	Intrawell
Total Alkalinity	meq/L	Semiannually	Interwell	Intrawell
Total Hardness	mg/L	Semiannually	Interwell	Intrawell
Major Anions	mg/L	Semiannually	Interwell	Intrawell
Major Cations	mg/L	Semiannually	Interwell	Intrawell
VOCs	µg/L	Semiannually	Intrawell	Intrawell
Constituents of Concern (Attachment D)				
Non-Naturally Occurring		Every 5 years	Intrawell	Intrawell
Naturally Occurring, <10 % detected in background		Every 5 years	Intrawell	Intrawell
Naturally Occurring, ≥10 % detected in background		Every 5 years	Interwell	Intrawell

Five-year COC monitoring under this Order shall be conducted by 15 November 2004 and at least every five years thereafter.

C. Monitoring Data Analysis

Monitoring data analysis shall be include the following:

a. Background Data
   - Updating concentration limits for statistical monitoring parameters and COCs, as necessary.

b. Nature and Extent of Release
   - Comparisons with concentration limit to identify any new or previously undetected constituents at a monitoring point
   - Water chemistry analysis by appropriate methods (i.e. ion balance, Piper diagram, Stiff diagram etc.).
   - Preparation of contaminant contour maps for representative constituents of the release.

b. Effectiveness of Corrective Action
   - Preparation of time series plots for representative constituents
   - Trend analysis for each constituent using appropriate statistical and graphical methods (i.e., Mann-Kendall).
   - Comparison of contaminant contour maps for representative constituents of the release showing historical changes in plume size and concentrations.

The results of the above analysis, including a narrative discussion, shall be included in each semiannual report and summarized in the Annual Report, as specified under Reporting B.2, above. The semiannual monitoring report shall also include a discussion of the progress of corrective action toward returning to compliance with the Water Quality Protection Standard, as specified in Section 20430(h) of Title 27.

F. FACILITY MONITORING

1. Standard Observations

Standard Observations shall be performed **monthly** during the wet season (October 1 to April 30) and **quarterly** during the dry season (May 1 to September 30) and shall include those elements identified in Reporting Requirement F.4.f of the WDRs. Each monitoring report shall include a summary and certification of completion of all Standard Observations. Field logs of standard observations shall also be included in the report.

2. Regular Maintenance Inspections

Landfill facilities (i.e. monitoring wells) shall be inspected **quarterly** to identify the need for maintenance and repairs. Necessary repairs shall be completed within 30 days of each inspection. Field logs of these inspections and documentation of the repairs shall be included in each semiannual monitoring report.

3. After Storm Events

Within seven days following each significant storm event (i.e. one which produces 2.0 inches or more of precipitation within a 24-hour period, as measured at the Challenge Ranger Station near Brownsville), the Discharger shall inspect the landfill cover and precipitation and drainage facilities for damage. Areas of erosion or sedimentation observed during the inspection(s) shall be flagged and repaired within seven days of identification. If repairs cannot be completed within the seven-day time frame, the Discharger shall notify the Regional Board of such and provide a schedule for completing necessary repairs. Findings and repairs implemented as a result of these inspections shall be included in each semiannual monitoring report. If no inspection was conducted because there was no significant storm event during the semiannual period, the report shall state such fact.

4. Site Winterization

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility for the purpose of winterizing the

site. The inspection shall identify any damage to the landfill cover, grade, precipitation and drainage controls, access roads and other landfill facilities. Any necessary construction, maintenance, or repairs to these facilities shall be completed by **31 October**. The Discharger shall document the results of the winterization inspection and any repair measures implemented in the Annual Report due by **31 January** of each year.

Documentation of the results of the above inspections and any repairs implemented shall include field observations, the location of any damage observed (i.e. on a site map), photographs of the damage, and a description of any repairs implemented, including post-repair photographs.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

23 April 2004
(Date)

Attachments
JDM:

INFORMATION SHEET

ORDER NO. R5-2004-0059
YUBA COUNTY DEPARTMENT OF PUBLIC WORKS
UNITED STATES BUREAU OF LAND MANAGEMENT
PONDEROSA LANDFILL
YUBA COUNTY

Disposal History
The facility comprises 16-acres, including two closed, unlined landfill units, a borrow area, sedimentation basin, drainage facilities, access roads, and a transfer station. The landfill ceased accepting wastes in 1992 and since then has been operating as a transfer station. All municipal solid waste (MSW) is currently transported to the Ostrom Road Landfill in Marysville. The facility includes a 3-acre unit in the northern part of the site (Landfill 1) and a 5-acre unit in the southern part of the site (Landfill 2). Landfill 1 (LF-1) operated as a refuse burn dump from 1967 to 1973 and may have been subsequently operated for a period of time as a municipal solid waste (MSW) landfill. LF-2 operated from 1973 to March 1992, accepting primarily MSW, demolition debris and tires.

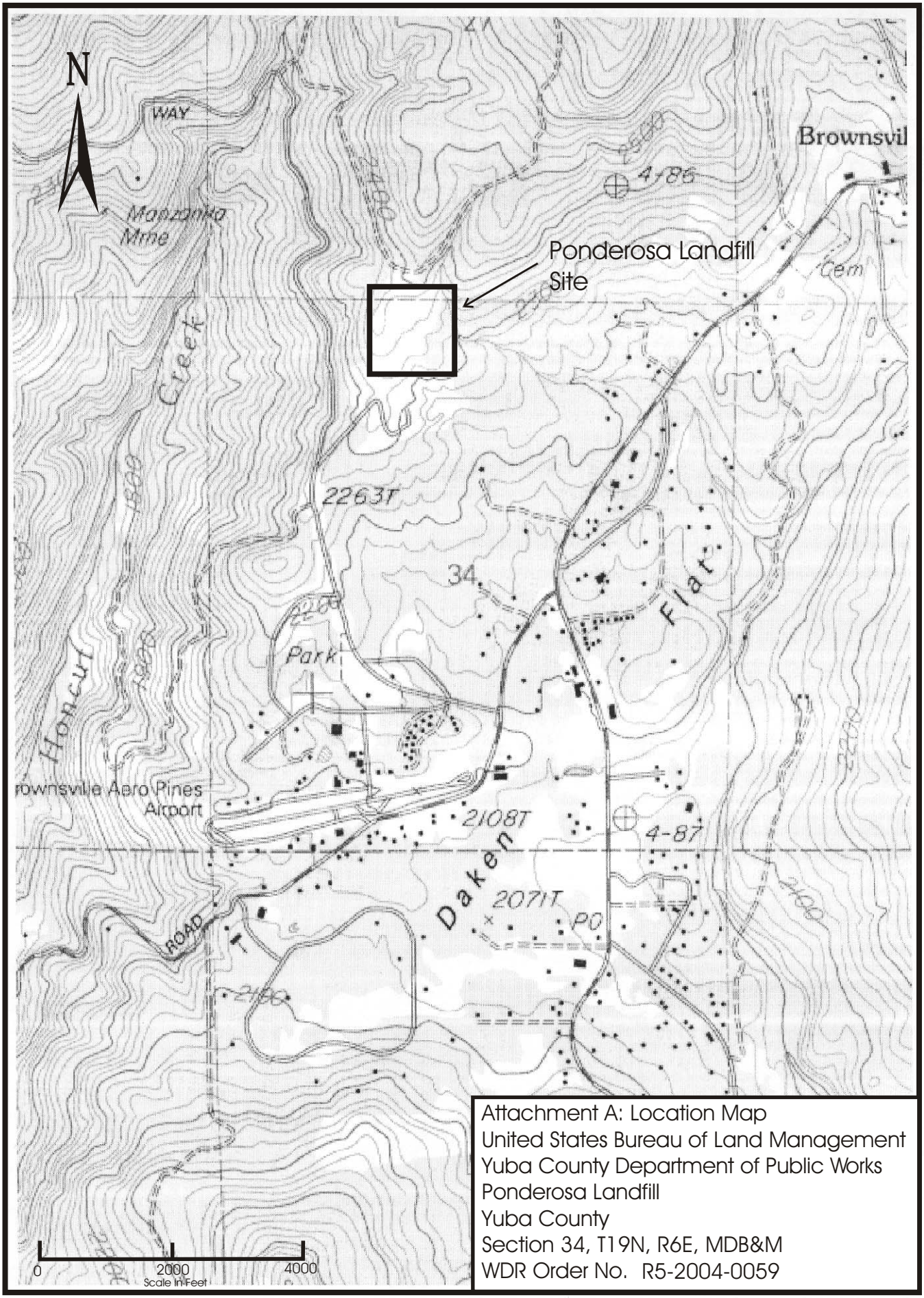
Unit Classification
Both landfills (LFs-1 and 2) are existing, reclassified Class III waste management units under Section 20080(d) of Title 27, since they operated prior to 27 November 1984. LF-1 is also an inactive unit under Section 20080(g) because it ceased accepting wastes prior to 27 November 1984.

Closure
Both landfills were closed in December 1995 with a low hydraulic conductivity clay cover ($k < 1 \times 10^{-6}$ cm/sec). Although as an active unit only LF-2 was required to comply with the prescriptive cover requirements of Title 27, the same low hydraulic conductivity clay cover was installed over both units as a corrective action to mitigate impacts to groundwater.

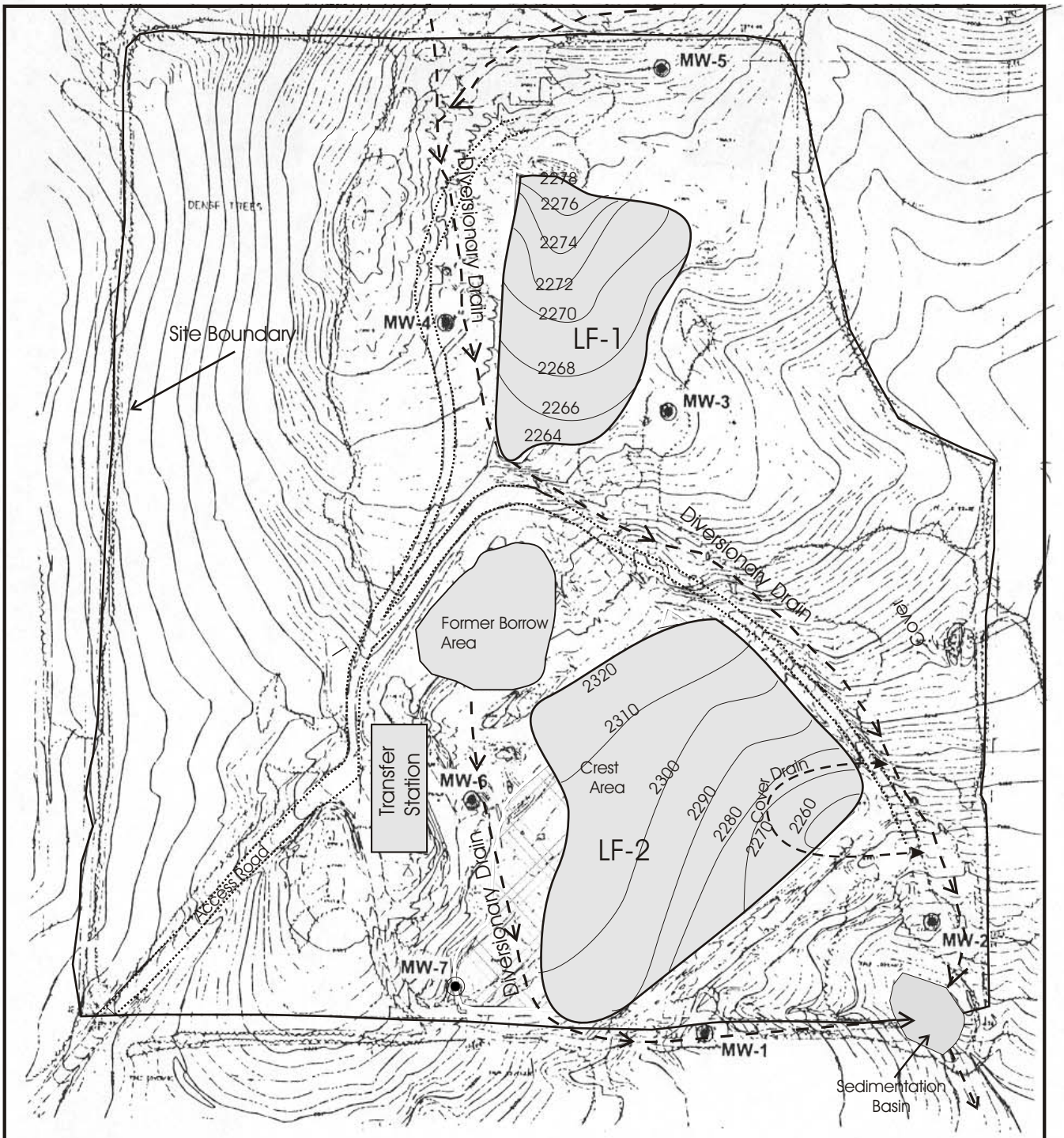
Groundwater
The depth to groundwater ranges from about 45 feet MSL (western side of LF-2) to 130 feet MSL (eastern side of LF-1) depending primarily on the surface topography. The groundwater flow direction varies depending on the location at the site. Groundwater in the LF-1 area and western part LF-2 flows to the southwest, while groundwater in the southern part LF-2 flows to the south and groundwater in the eastern part of LF-2 flows to the southeast. There are currently seven groundwater monitoring wells at the site, including three wells near LF-1 (MWs-3, 4 and 5) and four wells near LF-2 (MWs-1, 2, 6 and 7).

Volatile organic compounds (VOCs) and elevated concentrations of inorganic constituents were detected in the groundwater down gradient of both landfill units during a 1993 Solid Waste Assessment Test investigation. Total VOCs were detected up to about 51 µg/L in well MW-4 side gradient of Landfill 1 (LF-1) and up to about 31 µg/L in well MW-1 down gradient of Landfill 2 (LF-2). Since 1993, total VOCs detected in these wells have declined to about 1.0 µg/L and 6 µg/L, respectively, including 1,1-Dichloroethane (2.1 µg/L), 1,1-Dichloroethene (2.5 µg/L) and trace concentrations of Tetrachloroethylene (TCE, 0.54 µg/L), cis-1,2-Dichloroethene and Dichlorodifluoromethane (Freon 12). All VOCs were detected below applicable water quality limits except for the TCE, which was detected in well MW-4 at trace concentrations above the 0.06 µg/L California Public Health Goal.

Elevated concentrations of inorganic constituents, including chloride, sulfate and total dissolved solids, have also been historically detected in groundwater at the site, primarily at LF-1. Since 1995 when the Landfill was closed, the concentrations of inorganic constituents detected in groundwater at LF-1, where impacts were greatest, have significantly declined, while at LF-2 they have remained relatively constant. Total Dissolved Solids (TDS) detected at LF-1, for example, declined from 820 mg/L in 1995 to 240 mg/L in 2003, while at LF-2 TDS remained at about 390 mg/L during this period. Background levels ranged from 160 mg/L to 230 mg/L.



Attachment A: Location Map
United States Bureau of Land Management
Yuba County Department of Public Works
Ponderosa Landfill
Yuba County
Section 34, T19N, R6E, MDB&M
WDR Order No. R5-2004-0059



*Cover limits based on 12/5/95 as-built map prepared by Emcon.

Legend

- Groundwater Monitoring Well
- Limit of Landfill Cover*
- Storm Water Flow

0 200 400

Scale in Feet

N

Attachment B: Site Map
United States Bureau of Land Management
Yuba County Department of Public Works
Ponderosa Landfill
Yuba County
Section 34, T19N, R6E, MDB&M

WDR Order No. R5-2004-0059

ATTACHMENT C

MONITORING PARAMETERS &
APPROVED USEPA ANALYTICAL METHODS

Field Parameters	**USEPA Test Method**
pH	----
Specific conductance	----
Temperature	----
Turbidity	----

General Minerals	**USEPA Test Method**
Total Dissolved Solids (TDS)	2540C
Total Alkalinity	2310B
Total Hardness	2340B
<u>Major Anions</u>	
Bicarbonate	2310B
Chloride	300 (anion scan)
Nitrate – Nitrogen	300 (anion scan)
Sulfates	300 (anion scan)
<u>Major Cations</u>	
Calcium	200.7 (trace method)
Magnesium	200.7 (trace method)
Potassium	200.7 (trace method)
Sodium	200.7 (trace method)

Volatile Organic Compounds[1] **(VOCs)** (by USEPA Method 8260B):

Acetone
Acetonitrile
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Tert-Amyl ethyl ether
Tert-Amyl methyl ether
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Tert-Butyl alcohol
n-Butlybenzene
sec-Butlybenzene
tert-Butlybenzene
tert-Butyl ethyl ether
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)

ATTACHMENT C (CON'T)

Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- l ,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane
2,2-Dichloropropene
1,1-Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Iodomethane (Methyl iodide)
Isobutyl alcohol
di-Isopropyl ether
Methacrylonitrile
Methyl bromide (Bromomethene)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene

ATTACHMENT C (CON'T)

1,2,4-Trichlorobenzene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
Xylenes (total)

1. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte per WDR Monitoring Specification E.13.

ATTACHMENT D

CONSTITUENTS OF CONCERN &
APPROVED USEPA ANALYTICAL METHODS

Field Parameters	**USEPA Test Method**
pH	----
Specific conductance	----
Temperature	----
Turbidity	----

General Minerals	**USEPA Test Method**
Total Dissolved Solids (TDS)	2540C
Total Alkalinity	2310B
Total Hardness	2340B
<u>Major Anions</u>	
Bicarbonate	2310B
Chloride	300 (anion scan)
Nitrate – Nitrogen	300 (anion scan)
Sulfates	300 (anion scan)
<u>Major Cations</u>	
Calcium	200.7 (trace method)
Magnesium	200.7 (trace method)
Potassium	200.7 (trace method)
Sodium	200.7 (trace method)

Dissolved Inorganics [1]	**USEPA Test Method**
Aluminum	200.7/6010
Antimony	200.7/6010
Arsenic	200.9/200.8
Barium	200.7/6010
Beryllium	200.7/6010
Cadmium	200.7/6010
Chromium	200.7/6010
Chromium VI^{+}	7199/1636
Cobalt	200.7/6010
Copper	200.7/6010
Cyanide	335.4/9010
Iron	200.7/6010
Lead	200.9/200.8
Manganese	200.7/6010
Mercury	7470A
Molybdenum	200.7/6010
Nickel	200.9/200.8

ATTACHMENT D (CON'T)

Selenium	200.9/200.8
Silver	200.7/6010
Sulfide	9030
Thallium	200.7/6010
Tin	200.7/6010
Vanadium	200.7/6010
Zinc	200.7/6010

Volatile Organic Compounds[2] (VOCs) (by USEPA Method 8260B):

Acetone
Acetonitrile
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Tert-Amyl ethyl ether
Tert-Amyl methyl ether
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Tert-Butyl alcohol
n-Butlybenzene
sec-Butlybenzene
tert-Butlybenzene
tert-Butyl ethyl ether
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- l ,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane

ATTACHMENT D (CON'T)

2,2-Dichloropropene
1,1-Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Iodomethane (Methyl iodide)
Isobutyl alcohol
di-Isopropyl ether
Methacrylonitrile
Methyl bromide (Bromomethene)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
4-Methyl-2-pentanone (Methyl isobutylketone)
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
Xylenes (total)

ATTACHMENT D (CON'T)

Semivolatile Organic Compounds[2] (USEPA Method 8270 - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
p-Chloroaniline
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Ethyl methanesulfonate

ATTACHMENT D (CON'T)

Famphur
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

ATTACHMENT D (CON'T)

Organochlorine Pesticides[2] (USEPA Method 8081A)

Aldrin
α-BHC
β-BHC
γ-BHC (Lindane)
δ-BHC
Chlorobenzilate
α-Chlordane
γ-Chlordane
Chlodane – not otherwise specified
DBCP
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Hexachlorocyclopentadiene
Isodrin
Methoxychlor
Toxaphene

Polychlorinated Biphenols[2] (PCBs, USEPA Method 8082)

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Organophosphorus Pesticides[2] (USEPA Method 8141A):

Chlorpyrifos
Diazinon
Dimethioate
Disulfoton
Ethion
Famphur
Malathion

ATTACHMENT D (CON'T)

Parathion
Parathion-ethyl
Parathion-methyl
Phorate

Chlorinated Herbicides[2] (USEPA Method 8151A):

2,4-D (2,4-Dichlorophenoxyacetic acid)
Dicamba
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
MCPA
MCPP
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
Pentachlorophenol

1. Samples shall be field filtered prior to performing dissolved inorganics analysis.
2. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte per WDR Monitoring Specification E.13.